ATOMIC ENERGY newsletter

THE FIRST AND ONLY ATOMIC [illegible] SERVICE

ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS, INC., 509 FIFTH AVENUE, NEW YORK 17, N. Y.

February 26th, 1952
Vol. 7...No. 1

Dear Sir:

Work on a second atomic power plant, that eventually could be developed for propulsion of a submarine, is now to enter the construction stage. Work will be undertaken on this submarine intermediate reactor at the Knolls Atomic Power Laboratory, Schenectady, which is operated for the USAEC by General Electric Co. The preliminary theoretical work has been completed, with additional work done at Knolls on the use of liquid sodium metal as the heat transfer medium, the method of choice for utilizing the heat generated in the reactor and converting it to usable energy. Meanwhile, Westinghouse Electric Corp., continues with its work on a thermal reactor, the eventual application of which is also to power a submarine. Both are land-based prototypes. (The Electric Boat Co., Groton, Conn., have received a contract for the first hull to house a nuclear power plant, and the 1953 Navy budget requests funds for a second such hull.)

Plans have been made for a new series of tests of atomic weapons at the Eniwetok Atoll proving ground in the Pacific, the USAEC and the Department of Defense disclosed in Washington last week. The tests will be under the jurisdiction of Joint Task Force 132, with M/G. P. W. Clarkson in overall command. As in the previous Eniwetok tests, all services are represented. Dr. Alvin C. Graves, of the Los Alamos Scientific Laboratory, will be the key figure, with large groups of military personnel as "observers".

Great Britain will test an atomic bomb in Australia, probably in late September or October. Last week two ships of the Royal Navy sailed for Australia with technicians and equipment to prepare for this first test program. Directing the experiments will be Sir John Cockcroft, Director of Atomic Energy Research; Sir Henry Garner, Chief Scientist to the Ministry of Supply; and Dr. William Penney, the Ministry's Chief Superintendent of Atomic Research.

A new department, which will concentrate on the study and evaluation of new processes, with special attention to development of industrial applications of atomic energy, has now been set up by Blaw-Knox Company. H. B. Coats is the first director of this Research and Development Department, in Blaw-Knox's Chemical Plants Division.

A five year extension of the contract for the operation of the Los Alamos Scientific Laboratory by the University of California has been made by the USAEC. The extension continues the present contract from July 1, 1952, the expiration date of this four year contract, to June 30, 1957. The terms of the contract are essentially unchanged, particularly regarding personnel policies and benefits currently being applied to 2,709 employees of the Laboratory. There is no change in the provision whereby the University of California is reimbursed for all authorized costs, but receives no fee for the operation.

Almost $54 million has been approved by the Federal Civil Defense Administration to build up supply and equipment stockpiles for use if an atomic war comes to the U.S.

Subscription rates: United States, U.S. possessions, and Canada, $18.00 a year. Latin America, $20.00 a year. All other countries, $25.00 a year.
Copyright, 1951, Atomic Energy News, Inc. All rights reserved.

NEW PRODUCTS, PROCESSES & INSTRUMENTS ... in the nuclear field...

FROM THE MANUFACTURERS-New fast neutron proportional counter, with response proportional to neutron sensitivity of human tissue over the energy range of 0.2 to 10 mev; known as Raychronix F-1 Counter. Design is based on theoretical and experimental research work carried out at Oak Ridge National Laboratory (Report #930.). The counter derives its characteristics by a combination of high and low energy polyethylene radiators, the hydrogenous gas filling, and the precise, geometrical configuration of the construction. Response of the counter is directional to the extent of a 2:1 response to axial versus lateral radiations. Overall dimensions are 3-1/8" length by 2" diameter. The counter is intended for operation with an amplifier having pulse height discrimination to ignore the small gamma ray pulses. A threaded end cap is provided for mounting. The counter will also be available with a fast neutron dosimeter, soon to be offered by this firm.--Radioactive Products, Inc,. Detroit 26, Mich.

New reagent, said to be specific for the analytical determination of thorium. This reagent has been under tests, along with others, at the U. S. Geological Survey laboratories, in Washington. These laboratories are interested in development of more rapid procedures for determining the amount of radioactive material in ores gathered by members of the Survey.--Fine Organics, Inc., New York, N. Y.

NOTES- To supplement its equipment for protection of personnel and property in industry generally, Mine Safety Appliances Co., Pittsburgh, is now distributing radiation detection instruments manufactured by Beckman Instruments, Inc., and the A. O. Beckman Co. Mine Safety feels that the step is warranted since the increasing use of radiation in research and many industrial processes makes the detection of radiation hazards an integral part of safety and industrial hygiene programs.

BUSINESS BRIEFS...in the nuclear field...

Bids Asked- Bids for the furnishing of equipment for a radioisotope laboratory at the Buffalo, New York, Veterans Administration Hospital are being accepted until March 11, 1952. The Buffalo radioisotope laboratory is one of several under construction in Va hospitals. There are 16 already in operation. The laboratory project will include the furnishing of all labor and materials. Drawings and specifications for the project are available upon application to the Director, Technical Service, Veterans Administration, Washington 25, D.C.

New Stock Issue- Due to a very substantial increase in its backlog of orders, stockholders of Radioactive Products, Inc., will vote, March 1st, on expanding the capitalization of the company by authorizing an issue of $1.25 par convertible Class A Common shares. If approved, stockholders will receive rights to purchase one share of Class A at par for each two Common held. The issue is being underwritten by A. H. Vogel & Co., members of the Detroit stock exchange. (An informative and carefully compiled "Handbook for Speculators & Investors in Atomic Energy" has recently been issued by A. H. Vogel, Penobscot Bldg., Detroit 26, Mich.)

Federal Trade Commission Complaint- The Federal Trade Commission has now issued a complaint charging Nuclear Products Co., Costa Mesa, Calif., with falsely representing that a radioactive brushing device it sells is harmless to those who use or handle it. The brushes, designated Static-Master, are designed to remove static electricity, dust and lint from photographic film and other appliances. Advertisements of the product, the complaint alleges, contain the following statement: "Static-Master instantly destroys static surface attraction with polonium, a harmless by-product of the uranium-radium series. "Contrary to this representation," the complaint says, "polonium is extremely dangerous if inhaled into the lungs or ingested." It adds: "--The representation by the respondent that polonium is harmless has the tendency and capacity to lead persons into the erroneous belief that both the Static-Master brush and wand (used in connection with the teaching of chemistry and physics) may be dismantled or otherwise misused and the polonium handled without injurious effect. Such representation also has the tendency to cause persons to become careless and leave the device in places accessible to children and uninformed persons who might dismantle the devices, come into contact with the polonium, and suffer severe injury thereby."

ATOMIC PATENT DIGEST...latest U. S. grants and applications...

A new group of 23 patents, developed in the course of nuclear research, have now been made available on a royalty-free (non-exclusive) basis. Inquiries concerning this latest group, as well as the 372 similar patents previously made so available, should be made to the Patent Branch, USAEC, Washington 25, D.C. This new group comprises: (1) Electrostatic accelerator employing an inert gas under pressure; Pat. No. 2,578,908. (2) Regulated power supply utilizing a source of high direct current voltage and providing a high voltage power supply with a high stability and high degree of regulation; Pat. No. 2,579,225. (3) An improved target arrangement for producing certain radioactive isotopes; Pat. No. 2,579,243. (4) Neutron density indicator which is stable and sensitive at both low and high neutron density; Pat. No. 2,579,994. (5) Producing uranium monocarbide by heating uranium metal in contact with methane or an aliphatic hydrocarbon; Pat. No. 2,580,349. (6) Apparatus for the preparation of metal halides; Pat. No. 2,580,549. (7) Means for storage of a perhaloacetyl peroxide; Pat. No. 2,580,358. (8) Shield which substantially prevents the transmission of X-rays, gamma rays, and other penetrating radiation; Pat. No. 2,580,360. (9) Method for the preparation of a perhaloacetyl peroxide; Pat. No. 2,580,373. (10) Process for preparing thin films of such metal compounds as uranium oxides and hydroxides; Pat. No. 2,581,863. (11) An improved charging socket for use with a pocket ionization chamber; Pat. No. 2,582,163. (12) Process and apparatus for preparing uranium pentachloride and hexachloride from uranium oxides and lower uranium chlorides; Pat. No. 2,582,941. (13) Ion source mechanism capable of easy and rapid insertion or removal in a mass spectrometer without affecting the vacuum thereof; Pat. No. 2,583,121. (14) Calibration unit for cathode ray tubes employing a simple electrical circuit using standard parts; Pat. No. 2,583,469. (15) Pipe clamp suitable for extraction of vertical pipes from locations which are inaccessible; Pat. No. 2,584,801. (16) Electronic electroplating control system which will maintain a constant potential between the cathode and the plating solution; Pat. No. 2,584,816. (17) An electronic device capable of measuring minute unidirectional currents; Pat. No. 2,585,639. (18) Process for producing fluorocarbons containing a minimum of unsubstituted hydrogen atoms from hydrocarbons of from 17 to 23 carbon atoms such as petroleum lubricating oil; Pat. No. 2,585,644. (19) Apparatus which is useful in comparing the nuclear reactions of a plurality of samples; Pat. No. 2,585,649. (20) High voltage regulator circuit which is stable over a large range of load conditions; Pat. No. 2,585,679. (21) An improved ion source for a mass spectrometer comprising a coated thermionic ion source and a pair of flat electrodes suitably arranged to focus and direct the ions produced by the source; Pat. No. 2,585,702. (22) Method of determining the isotopic composition of an element; Pat. No. 2,585,901. (23) An atomic explosion direction indicator. Comprises a geometric heat scorchable indicating surface symetrical about an axis, elevation and azimuth markings on the heat scorchable surface, and an indicating rod at the axis of said surface arranged to cast a shadow thereon, whereby heat from an atomic explosion will scorch a pattern on said surface indicative of the azimuth and elevation of said explosion. Application for Letters Pat., Serial No. 255,501.

PEOPLE...in the nuclear program...

Dr. George M. Lyon, founder and director of the extensive radioisotope program in Veterans Administration hospitals, has now been appointed assistant chief medical director for research and education, in the VA. Dr. Lyon replaces Dr. E. H. Cushing, who is resigning March 1st.

Dr. Charles S. Simons, who directed the Radiochemical laboratory at Louisiana State University, in addition to his work as associate professor of physics there, has joined the Oak Ridge Institute of Nuclear Studies as a senior scientist in the special training division.

Two new radiochemists, Dr. Daniel J. Cavanaugh and Arthur E. Heath, have been added to the chemistry department at the Nuclear Instrument and Chemical Corp., Chicago. Dr. Cavanaugh and Mr. Heath are working on Nuclear's new bio-synthesized carbon-14 labeled sugars and algae program.

RAW MATERIALS...ores and minerals for nuclear work...

UNITED STATES- First shipments of uranium ore from the recently discovered carnotite mine near Edgemont, S. D., have now been made to the U.S. Vanadium Corp. plant in Colorado. Although the exploration is still in its infancy, the shipment was intended as a test load to determine the future possibilities of the deposits in this area of the Black Hills. Although many claims have been staked in the area, very little actual development work has been done. Reports from mining men who have examined the carnotite outcroppings in the Edgemont area are that the ore will run considerably higher in grade than much now being mined in Colorado and Utah.

CHILE- Strong traces of uranium have been found in the Coquimbo Province nitrate mines of the British and Chilean-owned Tarapaca Antofagasta Nitrate Co. The discovery is expected to result in early enactment of a bill now before the Chilean Congress to nationalize all uranium deposits. Meanwhile, the semi-official Production Development Corp. announced plans to intensify prospecting for uranium in several Chilean provinces.

IONIZING RADIATION...applications and notes...

Although as a gross energy source radiation energy can never be competitive with heat energy, and there is still no general theory which will predict the chemical effects of radiation, E. L. Gaden and E. J. Henley, Columbia University, recently told an American Chemical Society meeting in New York that the high level of interest by industry, plus the USAEC's desire to dispose of accumulated fission products, will ensure the utilization of radiation energy by industry within the next few years. The development of this application, however, is being hampered at the present, they stated, because no fission wastes are available even for laboratory experiments, and all techniques must be investigated by extrapolation of the effects of pure isotope irradiation. At present, they reported, the industrial reactions receiving the greatest attention from radiochemists are gas phase reactions, with and without conventional catalysts. The production of ammonia from nitrogen and hydrogen, and the oxidation of sulfur dioxide to the trioxide seem the most promising. Sterilization by particle irradiation is probably the most advanced of the radiochemical techniques for industry, they further reported. It will probably be applied first to drugs and other non-food products, since studies of the effect of radiation on nutritional qualities will have to precede the use of this technique on food products.

This meeting (as above) also heard how the capacitron, an accelerator developed expressly for industrial uses, may be utilized for sterilization. W. Huber, Electronized Chemicals Corp., described this device, which uses a combination of an impulse generator and a laminated discharge tube to produce bursts of high intensity, fast electrons lasting for periods of a few microseconds. Although standard counting instruments cannot be used to measure radiation concentrations for such short periods, Huber told of a calorimetric technique which is used. Since the capacitron is intended specifically for sterilization, it uses two electron beams originating on opposite sides of the radiation zone, an arrangement which permits the two beams to overlap in the center of the body being irradiated. Although both beams are weakened by absorption when they reach this point, the sum of their intensities is nearly equal to that of the original beam.

Evidence which indicates that tritium, radioactive hydrogen, is no more dangerous than better known forms of radiation has been found in recent biological studies at Argonne National Laboratory, Chicago, Direct experimental evidence regarding the biological effectiveness of tritium is considered to be very important in view of the fact that it is, in common with radioactive carbon, a radioactive isotope that may be used to label a large variety of physiologically important chemical compounds. The conclusion is based on the results of two independently conducted studies by members of the Laboratory's biological and medical research division. In one, the single-celled Paramecia aureria were permitted to grow and reproduce in tritium water (a compound of radioactive hydrogen and oxygen) while in the other study, mice were injected with tritium water.

NUCLEAR ASPECTS...of engineering meetings & conventions...

Institute of Radio Engineers, National Convention, Mar. 3-6, 1952, New York City. Nuclear instrument manufacturers who will show their products at the radio engineering show accompanying this convention include-Anton Electronic Labs, Inc., Brooklyn 6, N. Y., will show Geiger counter tubes, and equipment. They will also show their high intensity monitoring instrument, the AN/PDR-32 which was developed for the Navy by Anton.....Atomic Instrument Co., Cambridge 39, Mass., will show their glow transfer counter, rapid data scaler and printer, automatic scaler with built in linear amplifier, and other apparatus.....Berkeley Scientific Co., Richmond, Calif., will show nuclear scalers and count rate meters.....Nuclear Instrument and Chemical Corp., Chicago, will show their portable alpha-beta-gamma survey instrument, civil defense high level radiation detector, Geiger-Muller probes, and other instruments .....Radioactive Products, Inc., Detroit 26 , Mich., will show gamma survey meters, alpha survey meters, and various instruments for the measurement of radioactivity .....Victoreen Instrument Co., Cleveland 3, Ohio, will show radiation instruments, Geiger tubes, and other apparatus.....A paper will be presented in the medical electronics section, of the IRE convention, on a "Continuous integrating counting-rate system for radioactivity". The authors, Mones Berman and Salvatore Vacirca, are from Sloan-Kettering Institute, N.Y.

American Chemical Society, National Meeting, Mar. 30-Apr. 3, Milwaukee: A symposium on radiochemistry will include the following papers-Chemical Technology in Atomic Energy Program.....The Design of Radiochemical Processing Plants.....Industrial Utilization of Fission Products.....Radiation Damage to Possible Heat Transfer Mediums.....Stability of Certain Materials to X-rays.....Radioisotope Processing Problems.....Use of Radioactive Tracers to Mark Interfaces and Measure Intermixing in Pipe Lines.....Development and Use of a Geiger Tube for Counting Carbon-14 in a liquid Phase.....Radioisotopes and the Detection of Leaks in Engineering Equipment.

American Institute of Electrical Engineers, Los Angeles Section, Feb.12, 1952: Describing some applications of atomic energy, Harry A. Winne, General Electric Co. vice-president of engineering, recently told this AIEE meeting that while no very tangible results had yet been obtained in generating useful power from atomic energy, he felt that real progress had been made. The first full-scale application of atomic power, he said, will probably be in a submarine power plant. It has the advantage that the initial charge of fuel will be sufficient to run the submarine for many months without refueling. Moreover, since it does not need air in order to "burn", the craft could operate underwater at full power for very long periods of time. Concerning the economic feasibility of atomic central power stations, Mr. Winne said that a dual purpose plant, making plutonium and selling it to the government, and also generating and selling power to the public, might pay. Such a plant, he stated, might be profitable long before we have developed processes sufficiently economical to permit a plant to recycle its plutonium and produce power only.

ATOMIC ENERGY DEVELOPMENT...abroad...

FRANCE- Since its creation in 1945 , the French Atomic Energy Commission has been engaged in developing and prospecting for uranium deposits in Metropolitan France and in the overseas territories of the French Union. It has also set up a factory for the treatment of uranium ore, and improved the extensive plants and laboratories of Chatillon (Seine), where scientists and engineers are doing research in nuclear physics and studying various radio elements. The ZOE pile, France's first experimental atomic pile, which was completed in the Fall of 1948, has furnished a total of six curies of radioisotopes, i. e., the equivalent of six grams of uranium. It is also furnishing the first quantity of plutonium salts sufficient for a study of the reactions of this element, which is of fundamental value in atomic science. A center of Nuclear Studies is now being completed on the Saclay plateau (Seine-et-Oise), where large-scale laboratories are being constructed around three plants that will mark the beginning of applied nuclear physics in France: a uranium and heavy water pile with a power exceeding 1,000 kw, and two partioleaccelerators of 15 to 25 mev. The projects dealing with atomic energy in France employ almost 1,500 research specialists, engineers and workers.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

February 26th, 1952.